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Global Coral Reef Monitoring Now Feasible

The structure and extent of coral reefs can now, for the first time, be monitored globally, thanks to new observations from NASA's Landsat 7 spacecraft. Detailed images of reefs from nearly 900 locations around the world have been collected in the first year of the Landsat 7 mission.

"Landsat 7's ability to see land features as small as 100 feet (30 meters) across and to repeatedly observe coral reefs worldwide makes this archive of images a unique and valuable scientific resource," said Landsat Project Scientist Darrel Williams of NASA's Goddard Space Flight Center. "No one else has been willing or able to acquire and archive this type of high-resolution global data for use by the scientific community."

Scientists at the University of South Florida, in collaboration with colleagues at the College of Charleston and Dalhousie University (Halifax, Nova Scotia), have completed initial tests of Landsat 7's ability to study coral reefs and are presenting their results at the 9th International Coral Reef Symposium in Bali.

Landsat 7 measurements of live coral in the Carysfort Reef, the largest reef in the Florida Keys, matches detailed



Landsat Image of Florida's Coral Reef

surveys taken on the ground, according to a joint study by Frank Muller-Karger, Serge Andrefouet, and Dave Palandro of the University of South Florida's College of Marine Science and Phil Dustan of the College of Charleston. The surface area of live coral in this reef has declined from more than 50 percent to less than 5 percent since 1975.

"Reefs around the world are in ecological collapse, especially in the Florida Keys," says Dustan. "We need to use remote sensing to help fight for their conservation."

Andrefouet has also completed a Landsat 7 inventory of the extensive coral atolls in French Polynesia in the

South Pacific using 22 separate scenes, each covering about 12,000 square miles. He was able to identify and map many different types of reef formations, from entire atolls covering hundreds of square miles to individual marine habitats.

"This study shows coral reef scientists how to do a large-scale reef inventory anywhere around the world," says Andrefouet.

"With the Landsat 7 data we can rigorously test hypotheses about how entire reef ecosystems form," says ecologist Bruce Hatcher of Dalhousie University. "We no longer are limited to the observations we can collect by wandering around in small boats and sampling individual reefs to infer large-scale processes from a few samples."

Hatcher and doctoral student Abdulla Naseer from the Maldives Ministry of Fisheries are using Landsat 7 data to understand how wind, waves, and sea level have shaped the coral-reef nation of the Maldives, south of India.

By combining weather and tidal records with a catalog of the physical features of the 2800 reefs derived from Landsat 7 images, the scientists can identify patterns of reef growth and erosion caused by monsoons and the ocean's waves and currents. A detailed understanding of how these climate forces shape coral reefs will enable scientists to better predict how reefs will respond to future climate changes.

With the Landsat 7 image archive, physical damage to reefs can now be monitored in near real-time, says Hatcher. "With Landsat 7's repeated coverage of coral reefs throughout the year and its fine-scale imaging capability, we will be able to see damage to reef structure caused by hurricanes."

Wallops Shorts..... Sounding Rocket Launch

A NASA Black Brant VC sounding rocket was successfully launched Oct. 26 from the White Sands Missile Range, N.M. The payload was a plasma physics experiment for Dr. James Hecht, Aerospace Corporation. The payload was recovered.

Fire Department Responses

Oct. 6 through Oct. 25
Aircraft Standbys – 135
Fire Alarms – 10
Ambulance Calls – 3

A Message from NASA Administrator, Dan Goldin

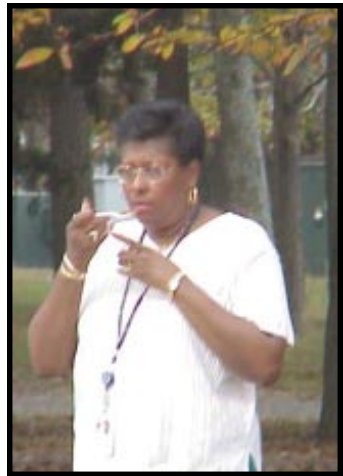
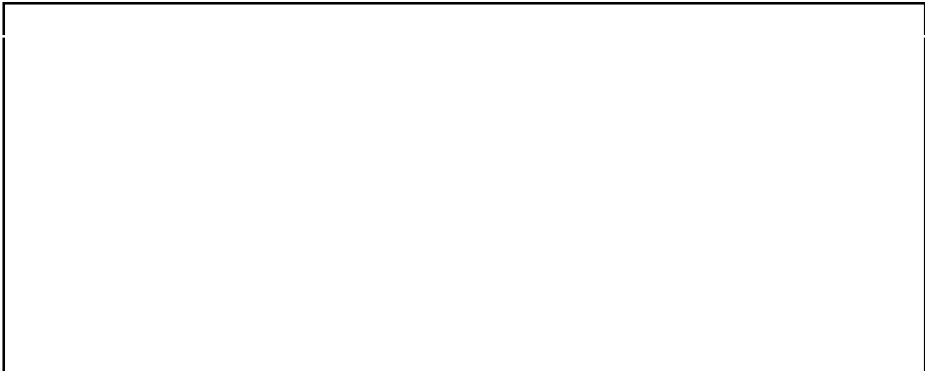
The President has received from the Congress the FY 2001 VA-HUD-Independent Agencies appropriations bill. The President is expected to sign the measure in the near future.

Thanks to the efforts of key Members of the House and Senate, and with the support of the Administration, this measure provides an excellent budget for NASA. Our supporters in the Congress faced considerable difficulties in reaching this outcome, and we should all be very grateful for their championing of the Nation's civil space and aeronautics program.

The bill appropriates \$14.285B for NASA for FY 2001. This is \$250M above the President's budget request, and \$633M more than the FY 2000 level. The bill fully funds the President's program for NASA, including all high-priority initiatives—the Space Launch Initiative, Shuttle Upgrades, the International Space Station and Living With a Star. The bill includes funding, as proposed by NASA, for two Mars rover missions in 2003. At a time when the public has become increasingly concerned regarding aviation safety, the Congress also fully funded the Administration's proposals for the Small Aircraft Transport System (SATS) program and the Aviation Systems Capacity Program. Finally, the bill provides extended buyout authority for NASA to assist in workforce rebalancing and restructuring without loss of FTE's, and for submittal of the FY 2002 budget in a full-cost mode.

Very importantly, you—the men and women of NASA—are to be credited for this robust budget. This is a budget that is moving in the right direction. The Congress has recognized that the revolution has taken hold at NASA, and that our Faster, Better, Cheaper way of doing business has allowed us to do more for less, with spectacular mission success, while increasing productivity. The Congress knows that it is performance that counts, and this budget is a tribute to NASA's performance.

While NASA will, no doubt, face some challenges in addressing emergent needs in Earth Science and Space Science, we are very fortunate to be starting the fiscal year from a great vantage point. Congratulations to all, and thanks for your dedication and hard work.



***Combined Federal
Campaign Fun Day
Oct. 26
Raised \$829***

***Chili Cook Off Winners
Manager's Choice -
Bob Reynolds
People's Choice -
Diana Jester***



Volleyball Tournament Winners -- U.S. Coast Guard



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